Global Sourcing of Business Processes: History, Effects, and Future Trends

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Abstract: We review key drivers, trends and consequences of global sourcing of business processes – the sourcing of administrative and more knowledge-intensive processes from globally dispersed locations. We argue that global sourcing, which is also associated with 'offshoring' and 'offshore outsourcing', has co-evolved over the past three decades with the advancement of information and communication technology (ICT), a growing pool of low-cost, yet often qualified labor and expertise in developing countries, and increasing client-side global sourcing experience. We show how this dynamic has led firms to develop new global capabilities, governance and business models, changed the geographic distribution of work and expertise, and promoted the emergence of new geographic knowledge services clusters. We further introduce three new trends – the emergence of global delivery models, ICT-enabled service automation, and impact sourcing – and discuss future directions for research.

Keywords: Outsourcing, offshoring, business processes, geographic clusters, new business models, information and communication technology

(1) Introduction

The disintermediation and global sourcing of both administrative and more knowledge-intensive business processes – a trend also referred to as 'offshoring' (Manning et al., 2008) – has been one of the most significant trends across industries and countries in the past few decades (UNCTAD, 2005; Kenney et al., 2009). It has not only changed the boundaries of the firm and the way firms perform their corporate functions (Sako, 2006) and organize innovation (Massini and Miozzo, 2012), but also how productive capabilities are distributed across geographies (Manning, 2013). It has brought about a new industry – global business services – and various new business models (Manning et al., 2015). It has led to fears of massive job losses in advanced economies (Blinder, 2006) and hopes for boosts of employment and development in emerging economies (Dossani and Kenney, 2007). Finally, it has inspired a rich stream of research across disciplines (Kenney et al., 2009).

In the following, we provide a selective overview of the current debates and trends in global sourcing of business processes. We draw on research from multiple domains – international business, management, information systems and economic geography – to match the complexity and cross-disciplinary importance of the phenomenon. While we apply a number of relevant theoretical angles, such as

interdependency theory, transaction cost economics, co-evolutionary and institutional views, we stay close to the empirical phenomenon itself. Eventually, we invite readers to further explore the various debates and perspectives introduced here. The final section elaborates on future research questions which we regard important to move research on global sourcing forward.

(2) Empirical scope

Many agree that global sourcing of business processes has become a mainstream practice. Business processes are typically defined as "structured, measured set[s] of activities designed to produce a specific output for a particular customer or market" (Davenport, 1993, p.5). While some processes may be specific to particular products, many are part of corporate functions supporting organizations *across* product lines (Sako, 2006). In particular large firms, but increasingly also small and midsize firms, mostly from advanced economies, engage in sourcing business processes from abroad in support of domestic or global operations (Manning et al., 2008). Such processes include information technology (IT) processes, such as server farm management and IT infrastructure, administrative human resource (HR) and legal processes, call centers, finance and accounting, product development functions, such as engineering support and software development, and analytical services (Lewin and Peeters, 2006; Manning et al., 2008).

The global sourcing trend has grown rapidly in recent years. Whereas in 2000, only 10% of U.S. firms engaged in global sourcing, by 2007, the number had risen to 50% (Lewin and Couto, 2007). Western European firms followed more recently, and today firms from Australia, Asia, Latin America and even Africa engage in sourcing business processes globally (Manning et al. 2016). Firms source business processes mostly from developing countries. U.S. firms have offshored mainly to India (50% of projects), Latin America (11%), China (9%) and other Asian countries (11%), notably Philippines (Manning, 2013). In India, around three million people work in the IT and business process outsourcing (BPO) sector (Sharma, 2015). The Philippines counts around 1.2 million BPO workers (Magkilat, 2015). Many firms from

continental Europe initially focused on Eastern European locations, but, facing saturated labor markets, they have also gradually started sourcing from Asian locations.

Whereas in the past most client firms would set up wholly owned captive centers for sourcing projects, today, a large share is taken on by specialized external service providers, many of whom are based in the U.S. or India, such as Accenture, Wipro, Infosys and IBM Global Services (Couto et al., 2008). According to recent estimates by the Indian outsourcing association NASSCOM (2015), the total market size for outsourcing IT and business processes has grown rapidly to $150 billion. Providers have not only learned to offer a variety of services (Ethiraj et al., 2005; Athreye, 2005), but also to set up delivery centers and tap into talent pools in locations across the world (Manning et al., 2015). Thus, firms' choice of sourcing location is increasingly affected by the availability of providers in these locations. Thereby, clients not only outsource processes but also delegate location decisions and associated risks to providers.

(3) Drivers and historical development

The trend of global sourcing of business processes has been driven by several technological, economic and organizational factors. One key *technological* driver has been the advancement of information and communication technology (ICT) (Mithas & Whitaker, 2007). On the one hand, the installment of high-speed transatlantic fiber-optic cables (Metters & Verma, 2008) along with improved telecommunication infrastructure in developing countries, such as India (Dossani & Kenney, 2007), has rapidly reduced the cost and increased the capacity of long-distance communication. On the other hand, advanced ICT has facilitated the digitization of processes and tasks, especially those whose 'information intensity' is high (Apte & Mason, 1995). This has led many scholars to argue that those tasks whose information intensity is high and whose performance needs neither physical presence or personal face-to-face interaction with clients can in principle be disaggregated and sourced from separate locations (Blinder, 2006; Apte & Mason, 1995). Interestingly, this is particularly true for 'knowledge work', which is traditionally performed

by skilled professionals (Sinha & Van de Ven, 2005). Not surprisingly, early offshoring experiments focused on IT, engineering and software services, later followed by analytical work and product design.

Beside these technological factors, one key *economic* driver has been perceived labor cost advantages of sourcing from developing countries (Lewin & Peeters, 2006). This includes the increasing availability of qualified and potentially lower-cost science and engineering graduates (Manning et al., 2008; Lewin et al., 2009). As the relative number of available young professionals in developing versus developed countries has been increasing rapidly in recent years (Freeman, 2006), sourcing high-skilled work from India, China and other emerging economies has become increasingly attractive – even beyond initial cost advantages. Also, specialized service providers have become increasingly available and able to take on numerous tasks and generate not only cost advantages but also speed up processes for clients (Couto et al., 2008; Manning et al., 2015). One key facilitating factor has been the ability of service providers to 'commoditize' processes, that is to make processes less firm-, product-, and industry-specific (Davenport, 2005) and thus generate specialization advantages vis-à-vis client firms (Athreye, 2005; Ethiraj et al., 2005). Finally, aside from exploiting cost and specialization advantages, many client firms generate co-location advantages, e.g. by bundling processes from across divisions in single locations, and creating synergies with expanding into new markets, e.g. by setting up regional headquarters.

Finally, there have been important *organizational* factors partially explaining the trend of global sourcing in recent years. In particular, growing firm-level experiences with global sourcing have accelerated recent sourcing decisions (Gospel and Sako, 2010; Jensen, 2009). For example, the 2006 decision of Cisco Systems to establish their second headquarters and global innovation center in Bangalore, India, arguably built on a history of offshoring experiences in India prior to that investment (Cisco, 2016). Likewise, research suggests that, quite independent of the growing service provider industry, many firms have accumulated global sourcing experience and capabilities through experimenting with setting up global captive centers (Manning et al., 2015). These experiments have triggered investments into organizational capabilities,

such as communicating between remote locations, that have facilitated future sourcing decisions and led to the development of global operational capacities (Jensen, 2009; Manning, 2014).

Relatedly, prior studies suggest that early experiences of lead firms, such as Microsoft and Motorola, in India and other offshoring destinations have generated trust among followers in setting up their own operations in the same locations (Patibandla and Petersen, 2002; Reddy, 1997). As a result, enclaves of foreign firms have established in particular offshore locations, such as German engineering firms that followed industry leaders in offshoring engineering work to Eastern Europe to tap into the growing pool of engineering graduates in these countries (Manning et al., 2012). Subsequent waves of foreign direct investment in particular locations have co-evolved with the emergence of talent pools and provider capabilities which, in conjunction, have led to the emergence of 'knowledge services clusters' (Manning, 2013) which continue to attract global sourcing projects today.

These drivers have taken effect over the course of around three decades. Arguably, the *foundation* for today's global sourcing trend was laid in the early 1980s when a number of mostly U.S. client firms began experimenting with offshore sourcing. One such experiment was Caribbean Data Services – a captive offshoring unit created by American Airlines in Barbados in 1983 in order to collect revenue data from used airline tickets and, later, to handle insurance paperwork (Metters and Verma, 2008). Both used to be flown to Barbados, and data entry results were sent back electronically via satellite. The main driver for this experiment was labor cost savings of 50% compared to doing the same work in the U.S. (Tulsa, Oklahoma). Another parallel experiment was the setting up of captive centers by U.S. insurance companies in Ireland to process health insurance claims. A number of U.S. lead firms, such as Microsoft, General Electric, Hewlett Packard and Texas Instruments, further explored opportunities of setting up shared services centers and joint venture contracts for software development and other services in India in the mid-1980s, thereby pushing the development of standards, graduate training programs, and telecommunication infrastructure in that country (Patibandla & Petersen, 2002). By the mid-1990s, U.S.

firms had created offshore jobs for up to 10,000 workers in the Caribbean, 3,000 workers in Ireland, and 20,000 workers in Asia, mostly India (Wilson, 1995).

From the mid-1990s to the late 2000s, global sourcing experienced *rapid growth* stimulated by successful experiments of lead firms, supportive export promotion and infrastructure policies of host governments, in particular India, and the emergence of specialized service providers, especially in India, such as Wipro, TCS, and Infosys. The latter would gain experience through contracts with lead firms coming to India, such as GE (Metters & Verma, 2008), as well as onsite low-level software service work, including coding, testing and support, at U.S. client firms in the early 1990s. This also allowed providers to gradually develop transferable client-serving capabilities (Ethiraj et al., 2005). With an improving telecommunication infrastructure in India, growing trust of client firms in offshore resources, and an increasing capacity of service providers, more and more projects would be located and performed offshore. The growth trend was further promoted by two events: first, many client firms needed a massive number of IT professionals in 1999 to fix the Y2K bug, benefitting mainly Indian firms (Metters & Verma 2008). Second, the stagnating number of Science and Engineering (S&E) graduates in the U.S. combined with an unexpected cut in H1B visas in 2003 created a temporary shortage of S&E professionals, which arguably led many U.S. firms to search for personnel offshore (Lewin et al., 2009). As a result, client firms gained offshore experience and developed capabilities allowing them to expand offshore operations.

Since late 2000s, we have been experiencing a *consolidation and transformation* of the global sourcing trend. The increasing commoditization of processes has, on the one hand, led to a rapid expansion of the outsourcing business, but, on the other hand, increased pressure on margins for service providers (Couto et al., 2008; Manning et al., 2015). Clients have gained experience with global sourcing, and expectations of service quality have increased. This has led to increasing investment of providers into new business models and service innovation. First, providers have started to increasingly expand service operations and set up service delivery units across the world to better meet client demands. Second, providers are

experimenting with using applied artificial intelligence to process client data more efficiently and make their services more attractive. Third, new market niches have emerged, most notably so-called 'impact sourcing' which serves the growing interest of clients in combining outsourcing decisions with corporate social responsibility considerations. We discuss these trends further below.

(4) Management of global sourcing relationships

While many firms took initial global sourcing decisions for opportunistic reasons, such as saving costs, many have expanded both internal and external sourcing relationships, following the well-known mantra "went for price, stayed for quality" (Dossani and Kenney, 2003). Yet, managing global sourcing relations is not a straightforward task and may turn out more difficult than originally anticipated. For example, not only may global sourcing provoke internal resistance in the domestic organization, but it may also impede productivity due to lack of trust, status differences between domestic and foreign units, and poor communication and interaction in business process delivery (e.g., Vlaar et al., 2008; Levina and Vaast, 2008). Employees with cultural and language differences at geographically dispersed locations, whether offshored or outsourced, are refrained from informal face-to-face coordination, and are required to rely on inferior technology-based coordination mechanisms (Storper and Venables, 2004; Manning et al., 2013). Also, Larsen et al. (2013) find that growing complexity of global sourcing—both with respect to the organizational configuration and the tasks being sourced—produces 'hidden costs' as it undermines decision makers' ability to accurately estimate the costs of sourcing activities abroad.

As such, the complexities and uncertainties resulting from the relocation of processes may affect the ability of firms to effectively reintegrate and perform processes across locations, thus affecting their ability to achieve anticipated performance outcomes (Larsen et al., 2013). Managing the increased complexity of operations across locations may require larger investments into coordination, and firms must thus engage in the coordination of international operational networks across geographies, cultures and

different institutional systems (Kumar et al., 2009; Niederman et al. 2006; Srikanth and Puranam, 2011). As business processes, to various extents, interdepend with other processes and activities, research has stressed that firms need to devise appropriate mechanisms of communication and knowledge transfer—ranging from often cost-intensive personnel rotation and other informal practices, to implementing enhanced videoconferencing and other technologies. Kumar et al. (2009) suggest that we still need to better understand task interdependencies in globally distributed work, and that both information stickiness and physical stickiness may result in specific structural dilemmas which need to be managed in global sourcing. In a similar vein, Srikanth and Puranam (2011) argue that firms need to make additional investments in new communication channels, shared training, coaching and other 'tacit forms of coordination', to manage the interdependencies across locations.

In managing global sourcing relationships, two decisions are particularly important: choice of governance mode and sourcing location. On the one hand, prior research indicates that choice of governance mode and supplier can be critical for clients in managing global sourcing complexity. Using transaction cost economics logic, Griffith et al., (2009) find that the asset specificity and uncertainty of the transaction has a direct impact on whether the business process is implemented internally or through an outsourcing arrangement. However, aside from transaction uncertainty, strategic and operational drivers play a similarly important role, including the ability of providers to drive down costs, provide access to talent and expertise, and speed up service delivery (see e.g. Manning et al., 2015). Also, research suggests that client-provider relationships tend to sustain over time (Manning et al., 2011), even though switches in suppliers and governance modes may happen as well (Petersen et al., 2010). On the other hand, selecting the right sourcing location is a key concern of firms as they build up globally dispersed operations. For example, firms have been found to choose locations with favorable wage differentials, knowledge infrastructure, availability of qualified personnel, and preferable country risks relative to the home country (Bunyaratavej et al., 2008; Doh et al., 2009). Also, firms are more likely to choose locations where

they have previous experience (Demirbag and Glaister, 2010) or ethnic ties (Zaheer et al., 2009). Increasingly, however, client firms delegate location choices to international providers who operate global networks of delivery centers on behalf of clients (Manning et al., 2015).

Another important concern is the ability of firms to build up, exchange, but also protect knowledge in global sourcing relations. For example, what kind of knowledge is necessary to 'transfer' to an outsourcing partner to facilitate an efficient process delivery? Can the communication channels be standardized and formalized without jeopardizing knowledge content (see e.g. Manning et al., 2013)? In this respect, while global sourcing is often portrayed as a learning-by-doing and opportunistic process (Jensen, 2009; Maskell et al., 2007; Asmussen et al., 2016), research shows that firms with previous sourcing experience generally display better performance in new sourcing ventures than firms with no or little experience. For example, Hutzschenreuter et al. (2007) argue that firms' past sourcing experience may influence the range of issues and possibilities that managers consider when making global sourcing decisions. Equally, in a recent simulation study, Asmussen et al. (2016) find that when firms aim to source functions from geographically distant locations, pursuing a strategy based on prior experience is more effective, as it reduces the risk of being overwhelmed by coordination costs after the implementation.

Finally, much literature has focused on performance implications of different global sourcing decisions and designs. For example, Larsen (2016) finds that a modular task design reduces hidden costs whereas ongoing communication has a negative impact. Typical performance variables include corporate financial performance (Mol et al., 2005), cost savings (Lewin and Peeters, 2006), hidden costs (Larsen et al., 2013), export performance (Bertrant, 2011), and sales growth (Murray et al., 1995)—and non-financial performance measures, such as learning and organizational transformation (Jensen, 2009; Maskell et al., 2007, Asmussen et al., 2016) and innovation performance (Nieto and Rodríguez, 2011).

(5) Emergence of knowledge services clusters

The recent global sourcing trend has had profound implications for the geographic distribution of work. Many scholars have wondered whether global sourcing, along with the digitization and commoditization of work, has made the world more 'flat', where location advantages become less important (Friedman, 2005; Mithas and Whitaker, 2007), or whether the world remains 'spiky' (Florida, 2005; Ghemawat, 2011). This question seems particularly relevant for the global distribution of so-called knowledge work, including engineering, software development, product design, R&D, and analytical services. We argue that while a larger number of cities and regions participate in providing such work for global clients, the geography of knowledge production is rather 'spiky' and dominated by so-called 'knowledge services clusters'.

Specifically, knowledge services clusters (KSCs) can be defined as geographic concentrations of lower-cost technical and analytical skills serving a rising global demand for commoditized knowledge services (Manning, 2013). Examples for KSCs include Bangalore, Chennai and Pune for software services (Zaheer et al., 2009; Sonderegger and Taeube, 2010), and Beijing, Sao Paolo, Moscow and Bucharest for R&D services (e.g. GlobalServices, 2008). Similar to other clusters, KSCs feature geographic agglomerations of firms, labor pools and institutions that are more or less specialized and interconnected, and that belong to a particular domain (e.g. Giuliani, 2005; Iammarino and McCann, 2006).

KSCs also have two specific features (Manning, 2013): First, they develop around business services, such as software development, testing and CAD design, rather than technologies or products. Second, they serve global clients, who are spread across rather than within particular industries. This is because knowledge services are increasingly decoupled from end products, market or industry specifics, i.e. they are increasingly commoditized, which generates productivity gains for specialized service providers (Sako, 2006). To some extent, KSCs combine features of both high-tech clusters (such as Silicon Valley, or Route 128 in the U.S.), and low-cost manufacturing clusters in emerging economies. Like high-tech clusters, they

rely on specialized providers and high-skilled workers as well as university programs that produce such skills. Yet, like low-cost manufacturing clusters, their existence also relies on significant labor cost advantages, which is why KSCs are mainly found in emerging, rather than advanced economies.

>>>>>>>>>>>>>>>> INSERT FIGURE 1 <<<<<<<<<<<<<<<<<

Because of this dual nature, KSCs are subject to the 'ambivalent effect' of service commoditization (see Figure 1). On the one hand, increasing commoditization, e.g. of software and engineering support services, may increase client demand for such services across industries which, in turn, helps expand markets and generate scale and scope economies for providers in KSCs. This may also explain how a growing number of locations have been able to provide business services to global clients. However, with increasing commoditization, location switching costs decrease for clients as well, since other KSCs may provide similar services and skills, which, in turn, increases competitive pressure on any particular location.

In trying to reduce competitive pressure, KSCs may benefit only to some degree from building specificity. Unlike in the case of high-tech clusters, whose skill sets serve highly specific client demands which allows them to develop a distinct competitive advantage due to high imitation barriers, in the case of KSCs, high specificity of knowledge services involves considerable disadvantages. Most importantly, high product or client specificity may lower the applicability of local service capabilities. Unlike high-tech clusters whose success depends on highly specific expertise in technologies for end users in particular industries, KSCs are selected by clients because they provide more generic, often low-value adding knowledge services, e.g. engineering tests, which feed into globally dispersed R&D client operations.

Therefore, KSCs are more likely to grow and continuously attract client projects within a global competitive space if the level of service commoditization is 'medium'. This allows for a sufficiently high volume of transactions and projects, while also generating some distinctiveness to lower the threat of imitation and to increase relocation costs for businesses operating in these clusters. One example of

'medium' commoditization is the provision of tech support to clients in the same time zone. While tech support can be highly commoditized, time zone proximity allows more immediate service and narrows down location options for clients demanding such service. Another example is high levels of service capability within a recognized standard system, such as the capability maturity model (CMM) for software development, which meets standards requirements of clients, yet helps differentiate from locations with lower standards levels (e.g. Arora et al., 2001; Ethiraj et al., 2005).

In the emergence of KSCs, linkages to advanced economies have been an important driver (Lorenzen & Mudambi, 2013). Many KSCs initially benefited from foreign direct investment of Western multinational enterprises (Patibandla & Petersen, 2002; Manning et al., 2010). Lead foreign firms often 'customize' local business conditions, e.g. by promoting process standards, building infrastructure, and sponsoring university programs to produce the talent they need (see e.g. Manning et al, 2012). This has enabled KSCs to develop a strong global orientation, but has also limited their aspirations of becoming a new 'Silicon Valley'. For example, Manning et al. (2012) describe how a German engineering firm has transformed a local university in Romania into a provider of qualified engineering graduates, which has attracted numerous client firms interested in offshoring engineering work since then. At the same time, this firm has prevented the local university from launching more sophisticated R&D projects, which might compete with university alliances back in Germany. In other words, the engagement of multinationals often helps build and embed KSCs in global production networks (see also Humphrey and Schmitz, 2002), but it may also limit or slow down further upgrading aspirations.

In addition, diaspora communities and returnee entrepreneurs have played a significant role in building KSCs (Kenney et al., 2013). Oftentimes, diaspora effects kick in after an emerging cluster already provides favorable conditions for employment and entrepreneurship, e.g. through supportive governmental policies and the arrival of lead multinationals (Kenney et al., 2013). The case of Bangalore is a good example (Lorenzen & Mudambi, 2013). Up to the early 1990s, many Indian science and engineering

students and young professionals moved to Silicon Valley; when U.S. visa policies got more restrictive, and conditions in cities like Bangalore became more attractive, many returned home, often to start their own business to serve U.S. clients who they had already established relationships with. These diaspora entrepreneurs have helped further 'embed' KSCs into global production networks (Saxenian, 2005) – by transferring business models and practices from environments that are familiar to global clients and by adapting business models to specific local context conditions, such as lower cost labor.

Recent studies suggest that new diaspora waves, e.g. of Indians into Africa, and the internationalization of global service providers, have promoted the emergence of new service hubs (PwC, 2011; Manning et al., 2016). Manning (2013) suggests that KSCs are more likely to continuously attract client projects if both globally operating MNCs (clients and/or providers) and local entrepreneurial providers are located in that cluster. Dominance of either global or local players will lower the attractiveness of a KSC. However, the properties and importance of KSCs will also depend on at least two trends we discuss further below: strategies of internationalization of service providers, and cloud and other technologies affecting the dependence of clients and providers on any one location.

(6) New trends in global sourcing

(a) Internationalization of service providers and global delivery models

One of the most important recent trends in the global outsourcing industry is the internationalization of service providers. For a long time, service providers mainly operated out of one location and occasionally sent on-site teams to client locations. As services have become more commoditized and competition for global client projects has increased, especially larger providers have begun to establish more permanent delivery centers all over the world (Manning et al., 2015). Accenture, Infosys and other major providers today have numerous delivery centers globally. In fact, ORN data suggests that over 50% of U.S. providers

have built up delivery centers in India, and over 50% of Indian providers have established delivery centers in the U.S. (see e.g. PwC, 2011).

The way in which service providers have set up delivery centers resembles historical trends in manufacturing, but also shows some unique features. In manufacturing, such as automotive production, location choices of suppliers have to a large extent been explained by so-called "follow-the-client" strategies, in which suppliers typically follow their major clients in their international expansion in order to meet the expectation of clients to develop and maintain highly integrated relationships with their main suppliers (Erramilli & Rao, 1990). Co-location can lower coordination and transportation costs and also enable better control of supplier performance (Yeung, Liu, & Dicken, 2006). Also it helps suppliers better match co-location advantages of their foreign rivals (Martin et al., 1998). This may partly explain the rationale of many Indian service providers, such as Infosys, to set up consulting units in the U.S. that allow them to better initiate and manage deals with U.S. clients.

However, the recent study by Manning et al. (2015) suggests that another major driver for setting up global delivery hubs is the ability to better manage time zone differences and set up what many have called 'global delivery models' (GDMs) (Ang and Inkpen, 2008; Carmel, 2006). These enable a "service provider to deliver seamless services from an optimized delivery structure that involves resourcing skills and resources" (Ang & Inkpen, 2008: 339). Unlike sales offices, GDMs constitute a globally integrated service delivery system which typically involves multiple centers at globally dispersed locations that contribute to the delivery of particular client services, for example IT system maintenance, call center operations, or software development.

>>>>>>>>>>>>>>>> Figure 2 <<<<<<<<<<<<<<

GDMs thereby encapsulate two locational components (see Figure 2). First, in order to establish GDMs, service providers set up international units that establish time zone proximity to core clients so that timely

and efficient coordination and negotiation of orders and tasks can be carried out. While this does not exclude physical proximity with clients, it is not a necessity. Anecdotal evidence suggests that the reason why U.S. or Indian providers have expanded into Central and South America (e.g., Costa Rica in the case of Infosys) or South Africa (in case of Accenture) is a combination of resource access, language abilities and time zone proximity to major U.S. or European clients.

At the same time, providers set up or maintain units that allow for time zone spread of operations to access various resources and to operate 24/7. When asked about their new delivery center in Brno, Czech Republic, Infosys Chairman Mohandas Pai describes the approach of his company in the following way: "The Brno centre is part of our strategy to build nearshore centers in various parts of the globe. This, along with our large offshore centers in India and the centre in China, gives us an expanded global network, allowing proximity to our clients and seamless flow of work on a 24×7 basis" (Infosys, 2007 cited in Manning et al., 2015). Advanced ICT has thus enabled a new form of international expansion and coordination of business service delivery, in which location decisions need to be seen as part of configurations of interrelated client-serving and back-office units across time zones.

This type of business model innovation may be the onset of a new rationale for internationalizing operations in other sectors as well. For example, whereas production facilities may continue to benefit from co-location with client sites (Majkgard & Sharma, 1998; Yeung et al., 2006), supporting digitized service operations may follow different global distribution patterns where positioning in particular time zones may become a more important driver of resource allocation. At the same time, the increasing ability of global service providers to obtain relational quasi-rents by bundling services and building hub-and-spoke operations targeting various clients (see also Sako, 2006) may help them take "service intermediary" functions in other B2B industries as well.

(b) New technologies and service automation

As ICT keeps advancing, global sourcing practices keep changing as well. A recent study by the World Economic Forum suggests that around five million administrative and office jobs across major economies will be made redundant by 2020 through advanced technology (WEF, 2016a). The study emphasizes in particular the driving force of mobile internet applications and cloud technology, big data processing applications and the "internet of things" – the increasing remote accessibility and interconnectedness of physical objects and infrastructure, including transportation, energy supply, buildings, and mobile technology (WEF 2016b). As a result, cyber-physical systems will be built and extended that integrate conventional and new technologies. In addition, artificial intelligence (AI) will be increasingly employed to process large amounts of data and operate such systems. This ongoing process is often associated with the "Fourth Industrial Revolution", which marks the "fourth" major technological transition – from the introduction of water and steam power (first), electric power (second), digitalization and automation (third) – to combining and automating the use of AI with the Internet of things and services.

Davenport and Iyer (2015) suggest that the trend of service automation will radically impact global sourcing practices. They suggest that "automation, which uses algorithms and artificial intelligence to do tasks now done by humans, could reshape the entire IT services and business process outsourcing (BPO) landscape" because, once set up, automated services may drastically reduce labor costs. This can already be observed in many ITO and BPO domains. For example, whereas twenty years ago many firms ran their own call centers in-house, they then started to gradually outsource call center operations to providers in developing countries thereby benefiting from labor cost arbitrage. Today, however, many firms are transitioning to automated response services for incoming calls based on pre-recorded scripts (Tufekci, 2015). Similarly, researching for court cases has transitioned from law firms internally processing masses of legal documents by hand to an industry where documents are increasingly analyzed by data processing software semi-automatically (Markoff, 2011).

These trends are predicted to have a significant impact on global employment dynamics. On the one hand, as predicted by the WEF (2016a) report, new service automation technology is likely, at least temporarily, to make human service jobs redundant. Observers predict in particular a reduction of jobs in developing countries (Treanor, 2016), specifically those that were previously created to cut costs – at a time when replacing them with automated services was still too costly. By comparison, in the near future automation may undercut human labor cost. One obvious example is the processing of inbound calls using improved speech recognition and basic algorithms to direct callers to pre-scripted standard answers.

On the other hand, service automation may create new, semi-skilled jobs to assist the 'functioning' of technology. This process has been historically observed whenever new digital and automation technology was introduced into the workplace, such as computerized numerical control (CNC) machines in the 1970s and 1980s. Critical scholars, in the Marxist tradition, referred to this event as a threat to the profession of machinists. Francis (1986) describes how human labor was 'reduced' to monitoring automatic control systems and to trouble-shooting in case CNC machines malfunction – an effect sometimes referred to 'deskilling', as it either replaces or reduces professions to technology 'assistance'. Similarly, it can be predicted that semi-automated service technology may continue to create more or less skilled human work to 'assist' new systems. For example, new software systems need to be installed, upgraded, and tested, and staff needs to be trained on new systems; new systems will continue to produce errors which need to be fixed and monitored; data processing software will always have restrictions in terms of what data can be processed, which requires 'pre-cleaning' and manual input of 'dirty data'; automated systems are unlikely to cover the entire workflow which requires human labor to 'connect workflows'; and client demands will continue to be negotiated and clarified – a task left to 'human labor'.

(c) Inclusive sourcing practices: rural sourcing and impact sourcing

The third trend relates to the increasing concern about employment and development effects in global sourcing. In particular, countries around the world have tried to develop an outsourcing industry as a way to promote economic development (Manning 2013). However, these efforts have typically focused on a certain segment of urban, highly trained professionals, while neglecting less privileged – e.g. rural, unskilled, disadvantaged – parts of the population.

Recently, two related trends have emerged that may promote more inclusive employment and development through global outsourcing jobs. One trend that is mainly driven by the potential to further cut labor costs is so-called 'rural sourcing' – the creation of outsourcing jobs in suburban and rural areas (Lacity et al., 2012). As service providers in urban centers (e.g. Bangalore) experienced rising infrastructure costs and wages, combined with client pressure to further reduce cost, they started exploring the option of moving to smaller cities and rural areas. Moving to rural locations helps lower local competition for talent and reduce operating costs. This has created job opportunities for college graduates and youth outside the main IT clusters like Bangalore (e.g. Kannothra & Manning, 2016).

In parallel, another trend has emerged many refer to as 'impact sourcing' (IS), which partly includes but also extends beyond 'rural sourcing'. Unlike the latter, IS has been mainly driven by development initiatives and concerns for more inclusive employment. In particular, the Rockefeller Foundation has been instrumental in promoting IS —a new model of global service outsourcing that focuses on providing employment opportunities to disadvantaged groups in society. This includes people in slums and minorities, whose access to education and income is limited, which prevents them from pursuing decent livelihoods and employment opportunities. It also includes people with physical disabilities (e.g. impaired hearing) whose access to regular jobs and careers is severely constrained (Hockerts, 2015).

The Rockefeller Foundation (2013) first experimented with IS by sponsoring pilot programs under the label 'Digital Jobs Africa' in Kenya, Ghana, South Africa, Nigeria, Egypt and Morocco in 2013. The idea was to

promote and fund so-called 'impact sourcing service providers' (ISSP) that are profitable while achieving community impact by hiring and training staff from disadvantaged groups. ISSPs thus represent a new form of hybrid business model – or 'social entrepreneurship' – in combining business and social objectives (Battilana and Dorado, 2011; Haigh and Hoffman, 2012). At the same time, it was anticipated that major clients would take an interest in IS as it helps better link outsourcing to corporate social responsibility initiatives (IAOP, 2012). However, it was equally expected that clients will continue to care mostly about cost and quality, which would pose a challenge to developing IS into a niche market (Bulloch and Long, 2012). Yet, IS has already developed into a successful new outsourcing business model in particular in sub-Saharan Africa, but also in India and to some extent in the U.S. (Lacity et al., 2012). According to Avasant (2012), the market for IS is expected to grow rapidly and account for around 17% of the global outsourcing industry thereby employing around 3 million people worldwide by 2020.

(7) Directions for future research

Following our review, we make some selective recommendations for future research. We focus in particular on questions of governance of global sourcing relationships, and geographic location and distribution of sourcing activities. Recommendations are equally driven by changing research agendas and the dynamics of the global sourcing trend itself.

First of all, we encourage future research to pay attention to the emergence of **new intermediaries** in global outsourcing. In particular, the advancement of ICT and the emergence of new sourcing models may generate incentives for new businesses to develop and offer new specialized capabilities to both global clients and conventional providers. As business model innovation has become a growing domain of management research in recent years (Chesbrough, 2010), we argue that the global outsourcing industry may be an excellent example of an industry with frequent cycles of business model innovation, driven by the rapid advancement of ICT, global competitive pressure, and growing processes commoditization. For example, the rise of Internet-based sourcing platforms, such as e-lance and Innocentive, suggest that the

global sourcing space is gradually merging with crowdsourcing, open innovation and other Internet-based sourcing practices (Baldwin and von Hippel, 2011; Fjeldstad et al., 2012; Bayus, 2013). Internet market platforms take intermediary roles in managing and translating client requests for particular services or solutions into marketable transactions. More than conventional service providers, Internet market platforms are able to access globally dispersed pools of providers and problem-solvers beyond established geographic clusters. However, this emerging space is also populated by innovation agents, such as Gen3, that specialize in building networks of freelancers they mobilize for particular client projects. In this regard, it will be also interesting to research to what extent regular service providers make extensive use of crowdsourcing and open innovation on behalf of their own global clients.

Second, as the global outsourcing industry is further professionalizing, another important, yet under-researched topic is the penetration and effects of **standards** on business models, governance and location choices. Standards have become a pervasive part of organizational life. They are typically defines as "rules(s) for common and voluntary use" (Brunsson et al., 2012, p.616). As mentioned above, one growing concern in the global sourcing literature is the role of process standards, such as Capability Maturity Model Integration (CMMI), for attracting global clients (Athreye, 2005; Niosi and Tschang, 2009). A recent study by Larsen and Manning (2015) suggests that the level of adoption of CMMI in a global sourcing destination may lower the otherwise negative effect of institutional distance between home and host country in affecting location choices. Yet, it can be expected that other types of standards are on the rise. For example, with the advent of impact sourcing, it can be predicted that labor and social standards may become an increasingly important consideration for both clients and suppliers, similar to other sectors, such as textiles manufacturing (Reinecke and Donaghey, 2015) and coffee production (Reinecke et al., 2012). A better understanding of social standards in the context of global sourcing of processes may refine our understanding of labor governance in global supply chains (Donaghey et al., 2013).

Third, another interesting future research field is the **integration of globally dispersed processes**. Whereas prior studies have focused a lot on the rationale for process disintermediation and relocation (Mithas and Whitaker, 2007), companies increasingly face the challenge of re-integrating globally distributed tasks (see e.g. Luo et al., 2012). Again, the service provider industry has been at the forefront of this process, by moving from the provision of independent services to integrated solution. Integration capabilities become important not least because service providers increasingly subcontract various services to specialized providers themselves (see also PwC, 2011). Learning more about process integration across geographic distances may advance long-lasting research on systems integration and systems integrators, in terms of agents that "lead and coordinate from a technological and organizational viewpoint the work of suppliers involved in the network." (Brusoni et al., 2001: 613; Hobday et al., 2005). In an organizational system consisting of a number of distributed components and entities, systems integrators thus become the architects that integrate and coordinate the different capabilities and resources of the different actors into a final output.

Finally, we suggest future research to pay attention to **global sourcing flexibility** in terms of the ability of firms to adapt governance and location choices to changing environmental conditions. For example, recent studies suggest that firms increasingly move operations within their global networks in response to changing economic and political conditions in any one location (Manning, 2014; Jensen et al., 2015). This has important implications for both firms and regions. On the one hand, firms develop the capacity to flexibly shift operations from one location to another. On the other hand, regions adapt to a reality where, due to increasing commoditization of processes and standardization of skill sets needed to perform those processes (Davenport, 2005; Manning, 2013), firms adjust local investments and capacities to changing demands in their global network.

(8) References

Ang, S., & Inkpen, A. 2008. Cultural Intelligence and Offshore Outsourcing Success: A Framework of Firm-Level Intercultural Capability. *Decision Sciences*, 39(3): 337-358.

Apte, U., & Mason, R. 1995. Global Disaggregation of Information-Intensive Services. *Management Science*, 41(7): 1250-1262.

Arora, A., Arunachalam, V., Asundi, J., & Fernandes, R. 2001. The Indian software services industry. *Research Policy*, 30(8): 1267-1287.

Asmussen, C. G., Larsen, M. M., & Pedersen, T. 2016. Organizational Adaptation in Offshoring: The Relative Performance of Home- and Host-Based Learning Strategies. Organization Science, 27(4), 911-928.

Athreye, S. 2005. The Indian software industry and its evolving service capability. *Industrial and Corporate Change*, 14(3): 393-418.

Avasant Group. 2012. *Incentives and Opportunities for Scaling the "Impact Sourcing" Sector*. Rockefeller Foundation.

Baldwin, C., von Hippel, E., 2011. Modeling a paradigm shift: from producer innovation to user and open collaborative innovation. *Organization Science* 22 (6), 1399–1417.

Battilana, J., & Dorado, S. 2010. Building Sustainable Hybrid Organizations: The Case of Commercial Microfinance Organizations. *Academy of Management Journal*, 53(6): 1419-1440.

Bayus, B.L. 2013. Crowdsourcing new product ideas over time: An analysis of the Dell Idea Storm community. *Management Science* 59: 226-244.

Bertrand, O. 2011. What goes around, comes around: Effects of offshore outsourcing on the export performance of firms. *Journal of International Business Studies*, 42(2): 334-344.

Blinder, A. 2006. Offshoring: The Next Industrial Revolution? *Foreign Affairs*, 85(2): 113.

Brunsson N, Rasche A, Seidl D. 2012. The dynamics of standardization: three perspectives on standards in organization studies. *Organization Studies*. 33(5-6): 613-632.

Brusoni, S., Prencipe A. and Pavitt K. (2001), Knowledge specialization, organizational coupling, and the boundaries of the firm: Why do firms know more than they make? *Administrative Science Quarterly*, 46, 4: 597-621.

Bulloch, G., & Long, J. 2012. *Exploring the Value Proposition of Impact Sourcing*. https://www.rockefellerfoundation.org/app/uploads/Exploring-the-Value- Proposition-for-Impact-for-Impact-Sourcing.pdf, February 3, 2016, Rockefeller Foundation.

Bunyaratavej, K., Hahn, E., & Doh, J. 2008. Multinational investment and host country development: Location efficiencies for services offshoring. *Journal of World Business*, 43(2): 227-242.

Carmel, E. 2006. Building your Information Systems from the Other Side of the World: How Infosys manages time differences. *MIS Quarterly Executive*, 5(1): 43-53.

Chesbrough, H. 2010. Business Model Innovation: Opportunities and Barriers. *Long Range Planning* 43 (2-3), 354-363.

Cisco, 2016. Cisco India Overview. http://www.cisco.com/web/IN/about/company_overview.html (Accessed: February 3 2016).

Couto, V., Mani, M., Sehgal, V., Lewin, A., Manning, S., & Russell, J. 2008. *Offshoring 2.0: contracting knowledge and innovation to expand global capabilities.* Durham, NC: Booz & Co. & Duke University.

Davenport, 1993. Process innovation: reengineering work through information technology. Harvard Business School Press. Boston.

Davenport, T. 2005. The coming commoditization of processes. *Harvard Business Review*, 83(6): 100-108.

Davenport, T., & Iyer, B. 2015. Bringing Outsourcing Back—to Machines. *The Wall Street Journal*. http://blogs.wsj.com/cio/2015/07/01/bringing-outsourcing-back-to-machines/, February 3, 2016.

Demirbag, M., & Glaister, K. 2010. Factors Determining Offshore Location Choice for R&D Projects: A Comparative Study of Developed and Emerging Regions. *Journal of Management Studies*, 47(8): 1534-1560.

Doh, J., Bunyaratavej, K., & Hahn, E. 2009. Separable but not equal: The location determinants of discrete services offshoring activities. *Journal of International Business Studies*, 40(6): 926-943.

Donaghey, Jimmy, Reinecke, Juliane, Niforou, C. and Lawson, B. 2013. From employment relations to consumption relations : balancing labor governance in global supply chains., *Human Resource Management* .

Dossani, R., & Kenney, M. 2007. The Next Wave of Globalization: Relocating Service Provision to India. *World Development*, 35(5): 772-791.

Erramilli, M., & Rao, C. 1990. Choice of foreign market entry modes by service firms: role of market knowledge. *Management International Review, .*, 135-150.

Ethiraj, S., Kale, P., Krishnan, M., & Singh, J. 2005. Where do capabilities come from and how do they matter? A study in the software services industry. *Strategic Management Journal*, 26(1): 25-45.

Fjeldstad, Ø.D., Snow, C.C., Miles, R.E., Lettl, C., 2012. The architecture of collaboration. *Strategic Management Journal*. 33 (6), 734–750.

Florida, R. 2005. THE WORLD IS SPIKY: Globalization has changed the economic playing field, but hasn't leveled it. *Atlantic Monthly*, 296(3): 48.

Francis, A. 1986. New Technology at Work, Oxford: Clarendon Press.

Freeman, R. 2006. Does Globalization of the Scientific/Engineering Workforce Threaten U.S. Economic Leadership? *Innovation Policy and the Economy*, 6: 123-157.

Friedman, T. 2005. *The World is Flat: A Brief History of the 21st Century*. London: Penguin.

Ghemawat, P. 2011. *World 3.0: Global prosperity and how to achieve it.* Cambridge: Harvard Business Press.

Giuliani, E. 2005. Cluster Absorptive Capacity: Why do Some Clusters Forge Ahead and Others Lag Behind? *European Urban and Regional Studies*, 12(3): 269-288.

GlobalServices. 2008. *The Top 50 Emerging Global Outsourcing Cities. Global Services Report*.

Gospel, H., & Sako, M. 2010. The unbundling of corporate functions: the evolution of shared services and outsourcing in human resource management. *Industrial and Corporate Change*, 19(5): 1367-1396.

Haigh, N., & Hoffman, A. 2012. Hybrid organizations: The next chapter of sustainable business. *Organizational Dynamics*, 41(2): 126-134.

Hobday, M., Davies, A., Prencipe, A. 2005. Systems integration: a core capability of the modern corporation. *Industrial and Corporate Change* 14 (6), 1109-1143.

Hockerts, K. 2015. A Cognitive Perspective on the Business Case for Corporate Sustainability. *Business Strategy and the Environment*, 24(2): 102-122.

Humphrey, J., & Schmitz, H. 2002. How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, 36(9): 1017-1027.

Hutzschenreuter, T., Lewin, A., & Dresel, S. 2011. Governance modes for offshoring activities: A comparison of US and German firms. *International Business Review*, 20(3): 291-313.

Hutzschenreuter, T., Pedersen, T., & Volberda, H. 2007. The role of path dependency and managerial intentionality: a perspective on international business research. *Journal of International Business Studies*, 38(7): 1055-1068.

Iammarino, S., & McCann, P. 2006. The structure and evolution of industrial clusters: Transactions, technology and knowledge spillovers. *Research Policy*, 35(7): 1018-1036.

International Association of Outsourcing Professionals (IAOP),. 2012. *Bi-Annual Survey of Corporate Social Responsibility in Outsourcing*. Corporate Social Responsibility (CSR) Subcommittee of the Advocacy and Outreach Committee.

Jensen, P. 2009. A learning perspective on the offshoring of advanced services. *Journal of International Management*, 15(2): 181-193.

Jensen, P.; Manning, S.; Petersen, B. 2015. Towards a Theory of Location Flexibility in Global Sourcing. Copenhagen Business School Working Paper.

Kannothra, C., Manning, S. 2016. Impact Sourcing at ServImpact. Managing People, Clients, and Growth. In: Sydow, J., Schuessler, E., Mueller-Seitz, G. (Eds.): Managing Interorganizational Relationships – Debates and Cases. Palgrave Macmillan.

Kenney, M., Breznitz, D., & Murphree, M. 2013. Coming back home after the sun rises: Returnee entrepreneurs and growth of high tech industries. *Research Policy*, 42(2): 391-407.

Kenney, M., Massini, S., & Murtha, T. 2009. Offshoring administrative and technical work: New fields for understanding the global enterprise. *Journal of International Business Studies*, 40(6): 887-900.

Kickul, J., & Lyons, T. 2012. Understanding Social Entrepreneurship: The Relentless Pursuit of Mission in an Ever Changing World. *Routledge*.

Kotabe, M., & Murray, J. 1990. Linking Product and Process Innovations and Modes of International Sourcing in Global Competition: A Case of Foreign Multinational Firms. *Journal of International Business Studies*, 21(3): 383-408.

Kumar, K., van Fenema, P., & von Glinow, M. 2009. Offshoring and the global distribution of work: Implications for task interdependence theory and practice. *Journal of International Business Studies*, 40(4): 642-667.

Lacity, M., Rottman, J., & Carmel, E. 2012. Emerging ITO and BPO markets: Rural sourcing and impact sourcing. *IEEE Computer Society*.

Larsen, M. 2016. Failing to estimate the costs of offshoring: A study on process performance. *International Business Review*, 25(1): 307-318.

Larsen, M.; Manning. S. 2015. Does Institutional Distance Still Matter? Industry Standards in Global Sourcing Location Decisions. Paper presented at Academy of International Business Meeting.

Larsen, M., Manning, S., & Pedersen, T. 2013. Uncovering the hidden costs of offshoring: The interplay of complexity, organizational design, and experience. *Strategic Management Journal*, 34(5): 533-552.

Levina, N., & Vaast, E. 2008. Innovating or doing as told? Status differences and overlapping boundaries in offshore collaboration. *MIS Quarterly*, 32: 307-332.

Lewin, A., & Couto, V. 2007. *Next generation offshoring: the globalization of innovation*. Durham, NC: Duke University CIBER/Booz Allen Hamilton.

Lewin, A., & Peeters, C. 2006. Offshoring Work: Business Hype or the Onset of Fundamental Transformation? *Long Range Planning*, 39(3): 221-239.

Lewin, A., Massini, S., & Peeters, C. 2009. Why are companies offshoring innovation? The emerging global race for talent. *Journal of International Business Studies*, 40(6): 901-925.

Lorenzen, M., & Mudambi, R. 2013. Clusters, Connectivity and Catch-up: Bollywood and Bangalore in the Global Economy. *Journal of Economic Geography*, 13(3): 501-534.

Luo, Y., Wang, S., Zheng, Q., & Jayaraman, V. 2012. Task attributes and process integration in business process offshoring: A perspective of service providers from India and China. *Journal of International Business Studies*, 43(5): 498–524.

Magkilat, B. 2015. 1.2 million BPO workers seen by December 2015. *Manila Bulletin*. http://www.mb.com.ph/1-2-million-bpo-workers-seen-by-december-2015/, February 2, 2016.

Majkgård, A., & Sharma, D. 1998. Client-Following and Market-Seeking Strategies in the Internationalization of Service Firms. *Journal of Business-to-Business Marketing*, 4(3): 1-41.

Manning, S. 2013. New Silicon Valleys or a new species? Commoditization of knowledge work and the rise of knowledge services clusters. *Research Policy*, 42(2): 379-390.

Manning, S. 2014. "Mitigate, Tolerate or Relocate? Offshoring Challenges, Strategic Imperatives and Resource Constraints". *Journal of World Business*, 49 (4), 522-535.

Manning, S., Massini, S., Lewin, A.Y. 2008. A Dynamic Perspective on Next-Generation Offshoring: The Global Sourcing of Science and Engineering Talent; *Academy of Management Perspectives*, 22 (3), 35-54.

Manning, S., Hutzschenreuter, T., Strathmann, A. 2013. Emerging Capability or Continuous Challenge? Relocating Knowledge Work and Managing Process Interfaces. *Industrial and Corporate Change*, 22 (5), 1159-1193.

Manning, S., Larsen, M., & Bharati, P. 2015. Global delivery models: The role of talent, speed and time zones in the global outsourcing industry. *Journal of International Business Studies*, 46(7): 850-877.

Manning, S., Ricart, J., Rosatti Rique, M., & Lewin, A. 2010. From blind spots to hotspots: How knowledge services clusters develop and attract foreign investment. *Journal of International Management*, 16(4): 369-382.

Manning, S., Sydow, J., & Windeler, A. 2012. Securing Access to Lower-cost Talent Globally: The Dynamics of Active Embedding and Field Structuration. *Regional Studies*, 46(9): 1201-1218.

Manning, S., Kannothra, C., Wissman-Weber, N. 2016. Hybrid Models as Strategic Opportunity? The Global Challenge of Business Service Providers in Africa. UMass Boston Working Paper.

Markoff, J. 2011. Armies of Expensive Lawyers, Replaced by Cheaper Software. New York Times March 4 2011. http://www.nytimes.com/2011/03/05/science/05legal.html Accessed: February 3 2016.

Martin, X., Swaminathan, A., & Mitchell, W. 1998. Organizational evolution in the interorganizational environment: Incentives and constraints on international expansion strategy. *Administrative Science Quarterly*, 43(3): 566–601.

Maskell,P., Dick-Nielsen,J., Pedersen,T. and Petersen,B. 2007. Learning Paths to Global Offshore Outsourcing - From Cost Reduction to Knowledge Seeking. *Industry and Innovation* 14 (3): 239-257.

Massini, S., & Miozzo, M. 2012. Outsourcing and Offshoring of Business Services: Challenges to Theory, Management and Geography of Innovation. *Regional Studies*, 46(9): 1219-1242.

Mayer, K.J., Somaya, D., Williamson, I.O. 2012. Firm-specific, industry-specific, and occupational human capital and the sourcing of knowledge work. *Organization Science* 23(5): 1311–1329.

Metters, R., & Verma, R. 2008. History of offshoring knowledge services. *Journal of Operations Management*, 26: 141-147.

Mithas, S., & Whitaker, J. 2007. Is the World Flat or Spiky? Information Intensity, Skills, and Global Service Disaggregation. *Information Systems Research*, 18(3): 237-259.

Mol, M., van Tulder, R., & Beije, P. 2005. Antecedents and performance consequences of international outsourcing. *International Business Review*, 14(5): 599-617.

Murray, J.Y., Wildt, A.R., Kotabe, M. 1995. Global Sourcing Strategies of U. S. Subsidiaries of Foreign Multinationals. *Management International Review* 35 (4), 307-324.

NASSCOM. 2015. *NASSCOM Annual Report 2014-15*. New Delhi: National Association of Software and Service Companies.

Niederman, F., Kundu, S., & Salas, S. 2006. IT Software Development Offshoring. *Journal of Global Information Management*, 14(2): 52-74.

Nieto, M., & Rodríguez, A. 2011. Offshoring of R&D: Looking abroad to improve innovation performance. *Journal of International Business Studies*, 42(3): 345-361.

Niosi, J., & Tschang, F. 2009. The strategies of Chinese and Indian software multinationals: implications for internationalization theory. *Industrial and Corporate Change*, 18(2): 269-294.

Patibandla, M., & Petersen, B. 2002. Role of Transnational Corporations in the Evolution of a High-Tech Industry: The Case of India's Software Industry. *World Development*, 30(9): 1561-1577.

Porter, M., & Kramer, M. 2011. The Big Idea: Creating Shared Value. *Harvard Business Review*, 89(1): 2.

PwC 2011. The ever-changing global service-provider industry. Key findings for 2010. Available online: https://www.pwc.com/us/en/increasing-it-effectiveness/assets/the-ever-changing-global-service-provider-industry.pdf

Reddy, P. 1997. New trends in globalization of corporate R&D and implications for innovation capability in host countries: A survey from India. *World Development*, 25(11): 1821-1837.

Reinecke, J. and Donaghey, J. 2015. After Rana Plaza: building coalitional power for labour rights between unions and (consumption-based) social movement organisations, *Organization* 22, 720-740.

Reinecke, J, Manning, S. and von Hagen, O. 2012. The emergence of a standards market: multiplicity of sustainability standards in the global coffee industry. *Organization Studies*, Vol.33, 791-814.

Rockefeller Foundation. 2013. *Digital Jobs in Africa: Catalyzing Inclusive Opportunities for Youth.* https://assets.rockefellerfoundation.org/app/uploads/20131217164951/Catalyzing-Inclusive- Opportunities-For-Youth.pdf, February 3, 2016, Rockefeller Foundation.

Sako, M. 2006. Outsourcing and Offshoring: Implications for Productivity of Business Services. *Oxford Review of Economic Policy*, 22(4): 499-512.

Saxenian, A. 2005. From Brain Drain to Brain Circulation: Transnational Communities and Regional Upgrading in India and China. *Studies in Comparative International Development*, 40(2): 35-61.

Sinha, K., & Van de Ven, A. 2005. Designing Work Within and Between Organizations. *Organization Science*, 16(4): 389-408.

Sonderegger, P., Taeube, F., 2010. Cluster lifecycle and diaspora effects: evidence from the Indian IT cluster in Bangalore. *Journal of International Management* 16 (4), 383–397.

Srikanth, K., & Puranam, P. 2011. Integrating distributed work: comparing task design, communication, and tacit coordination mechanisms. *Strat. Mgmt. J.*, 32(8): 849-875.

Storper, M., & Venables, A. 2004. Buzz: face-to-face contact and the urban economy. *Journal of Economic Geography*, 4(4): 351-370.

Treanor, J. 2016. Fourth industrial revolution set to benefit richest, UBS report says. The Guardian. January 19 2016. http://www.theguardian.com/business/2016/jan/19/fourth-industrial-revolution-set-to-benefit-richest-ubs-report-says Accessed: February, 3 2016.

Tufekci, Zeynep 2015. The machines are coming. New York Times April 18 2015. http://www.nytimes.com/2015/04/19/opinion/sunday/the-machines-are-coming.html?_r=0 Accessed: February 3 2016.

United Nations Conference on Trade and Development. 2005. *Prospects for foreign direct investment and the strategies of transnational corporations 2005–2008 (United Nations Report)*. Geneva: UNCTAD.

Vlaar, P., van Fenema, P., & Tiwari, V. 2008. Co-creating understanding and value in distributed work: How members of onsite and offshore vendor teams give, make, demand, and break sense. *MIS Quarterly*, 32(2): 227-255.

World Economic Forum 2016a. *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*: 3-26. Davos: World Economic Forum.

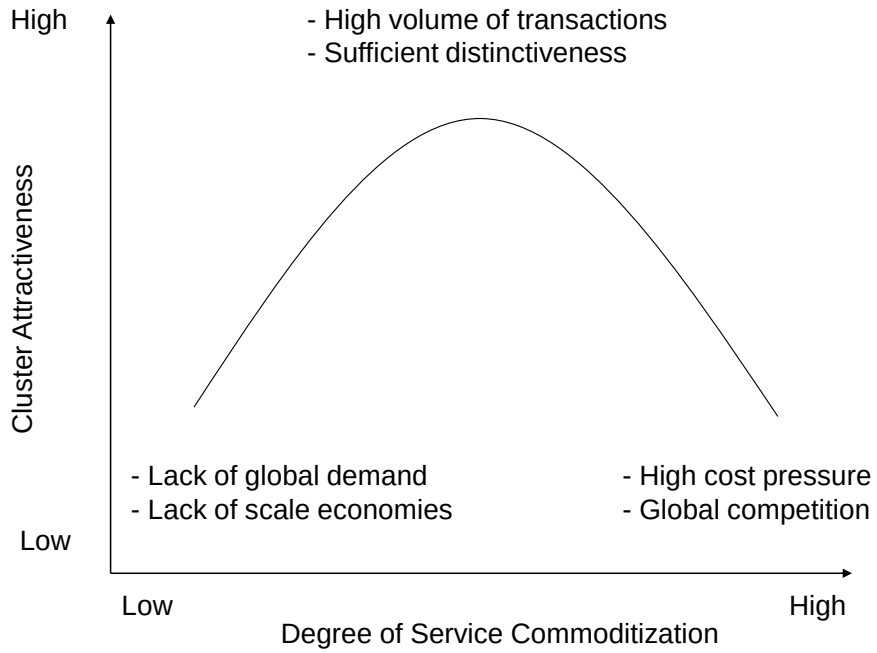
World Economic Forum 2016b. The fourth industrial revolution: what it means, how to respond. http://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond. Accessed: February 3 2016.

Yeung, H., Liu, W., & Dicken, P. 2006. Transnational corporations and network effects of a local manufacturing cluster in mobile telecommunications equipment in China. *World Development*, 34(3): 520-540.

Zaheer, S., Lamin, A., & Subramani, M. 2009. Cluster capabilities or ethnic ties? Location choice by foreign and domestic entrants in the services offshoring industry in India. *Journal of International Business Studies*, 40(6): 944-968.

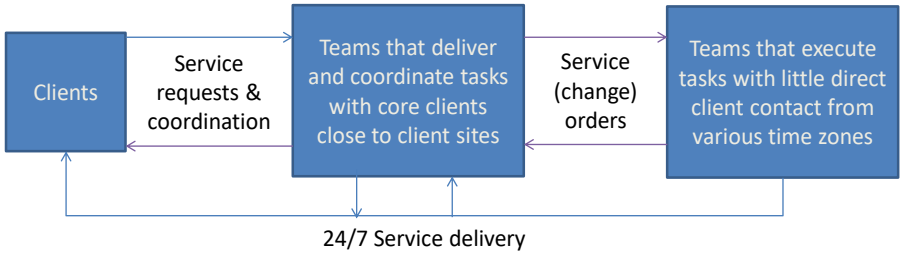
(9) Figures

Figure 1: Ambivalent Effect of Service Commoditization on Geographic Cluster Growth*



* From: Manning (2013).

Figure 2: Global Delivery Model**



** From: Manning et al. (2015).